

WHAT IS CLAIMED IS:

1. A metal detection circuit comprising:
 - a power source;
 - at least one transmitter circuit electrically coupled to the power source;
 - a transmit coil electrically coupled to the at least one transmitter circuit;
 - at least one receiver coil;
 - an amplifier electrically coupled to the at least one receiver coil;
 - an integrator electrically coupled to the amplifier;
 - a track/hold circuit electrically coupled to the integrator; and
 - a filter electrically coupled to the track/hold circuit and an output.
2. A circuit in accordance with claim 1 wherein the filter is a bandpass filter.
3. A circuit in accordance with claim 1 wherein the transmitter circuit comprises a coil charge circuit.
4. A circuit in accordance with claim 1 comprising two receiver coils each electrically coupled to the amplifier.
5. A circuit in accordance with claim 1 wherein the track/hold circuit comprises a first stage that includes an input resistor, an op-amp, an integrator capacitor, and a C-Mos SPDT switch, and a second stage that includes two passive RC filters and an op-amp buffer.
6. A circuit in accordance with claim 1 wherein the power source comprises a voltage source in the form of one of a battery, a battery of solar cells, a standard A/C source or a generator.
7. A metal detection circuit arrangement for a portable walk-through metal detector comprising a plurality of opposing pairs of sensor panels, each sensor panel pair comprising a circuit portion comprising:
 - at least one transmitter circuit electrically coupled to the power source;
 - a transmit coil electrically coupled to the at least one transmitter circuit;
 - at least one receiver coil;
 - an amplifier electrically coupled to the at least one receiver coil;
 - an integrator electrically coupled to the amplifier;
 - a track/hold circuit electrically coupled to the integrator; and
 - a filter electrically coupled to the track/hold circuit and an output.

1 8. A circuit arrangement in accordance with claim 7 wherein the filter is a
2 bandpass filter.

1 9. A circuit arrangement in accordance with claim 7 wherein the
2 transmitter circuit comprises a coil charge circuit.

1 10. A circuit arrangement in accordance with claim 7 wherein each circuit
2 portion comprises two receiver coils each electrically coupled to the amplifier.

1 11. A circuit arrangement in accordance with claim 7 wherein the
2 track/hold circuit comprises a first stage that includes an input resistor, an op-amp, an
3 integrator capacitor, and a C-Mos SPDT switch, and a second stage that includes two passive
4 RC filters and an op-amp buffer.

1 12. A circuit arrangement in accordance with claim 7 further comprising a
2 power source comprising at least one voltage source in the form of one of a battery, a battery
3 of solar cells, a standard A/C source or a generator.

1 13. A modular walk-through metal detector comprising:
2 a plurality of separate sensor panels arranged in opposing pairs electrically
3 coupled to each other and arranged one above the other along two separate sides to form two
4 side walls; and

5 at least one top cross-member that engages each side wall;

6 wherein each opposing sensor panel pair comprises a circuit portion
7 comprising:

8 at least one transmitter circuit electrically coupled to the power source;
9 a transmit coil electrically coupled to the at least one transmitter
10 circuit;

11 at least one receiver coil;
12 an amplifier electrically coupled to the at least one receiver coil;
13 an integrator electrically coupled to the amplifier;
14 a track/hold circuit electrically coupled to the integrator; and
15 a filter electrically coupled to the track/hold circuit and an output.

1 14. A metal detector in accordance with claim 13 wherein the filter is a
2 bandpass filter.

1 15. A metal detector in accordance with claim 13 wherein the transmitter
2 circuit comprises a coil charge circuit.

1 16. A metal detector in accordance with claim 13 wherein each circuit
2 portion comprises two receiver coils each electrically coupled to the amplifier.

1 17. A metal detector in accordance with claim 13 wherein the track/hold
2 circuit comprises a first stage that includes an input resistor, an op-amp, an integrator
3 capacitor, and a C-Mos SPDT switch, and a second stage that includes two passive RC filters
4 and an op-amp buffer.

1 18. A metal detector in accordance with claim 13 further comprising a
2 power source comprising at least one voltage source in the form of one of a battery, a battery
3 of solar cells, a standard A/C source or a generator.

1 19. A metal detector in accordance with claim 13 wherein each opposing
2 sensor panel pair is interchangeable.

1 20. A metal detector in accordance with claim 13 further comprising at
2 least one base coupled to each side wall.

1 21. A metal detector in accordance with claim 13 wherein the base
2 comprises at least two base members.

1 22. A metal detector in accordance with claim 13 wherein the metal
2 detector comprises six sensor panels, each side wall comprising three sensor panels.

1 23. A metal detector in accordance with claim 13 wherein each sensor
2 panel comprises windowed areas.

1 24. A metal detector in accordance with claim 23 wherein each sensor
2 panel comprises a weather-proof construction.

1 25. A metal detector in accordance with claim 13 wherein the sensor
2 panels may be stored in the top cross-member and the top cross member includes at least one
3 handle and at least two wheels.